Filing Date: September 24, 2003
Title: BI-DIRECTIONAL CATHETER ASSEMBLY AND METHOD THEREFOR

IN THE CLAIMS

Please amend the claims as follows:

- (Currently Amended) A deflectable catheter assembly comprising:
 - a catheter body extending from a deflectable distal end to a proximal end and having an intermediate portion therebetween, <u>wherein</u> the catheter body includes an actuator lumen;
 - a housing coupled to the proximal end of the catheter body;
 - a flexible element extending from the housing through the actuator lumen to the deflectable distal end, <u>wherein</u> the deflectable distal end is controllable by pushing and pulling of the flexible element; and
 - a first tubular support coupled [[to]] <u>around</u> the flexible element therein and coupled to an actuator mechanism disposed within the housing, the first tubular support movable with the actuator mechanism, <u>wherein</u> the first tubular support substantially constrains lateral movement of the flexible element.
- (Currently Amended) The deflectable catheter assembly of claim 1, further comprising: a second tubular support telescopically eoupled engaged with the first tubular support.
- (Currently Amended) The deflectable catheter assembly of claim 2, a second tubular support inner surface is dimensioned and configured to snugly envelop and slidably eouple engage with the flexible element.
- (Currently Amended) The deflectable catheter assembly of claim 3, a first tubular support outer surface has a complementary perimeter dimensioned and configured to slidably eouple engage with a surface defining the actuator lumen.
- (Currently Amended) The deflectable catheter assembly of claim 4, wherein the surface defining the actuator lumen has a circular geometry.

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- (Currently Amended) The deflectable catheter assembly of claim 4, wherein a first 6 tubular support intermediate surface and a second tubular support intermediate surface are dimensioned and configured to slidably eouple engage the first tubular support with the second tubular support.
- (Currently Amended) The deflectable catheter assembly of claim 6, wherein the first 7 tubular support intermediate surface, the first tubular support outer surface, and a first tubular support inner surface define at least one first tubular support finger.
- (Currently Amended) The deflectable catheter assembly of claim 6, wherein the second 8. tubular support intermediate surface, a second tubular support outer surface, and the second tubular support inner surface define at least one second tubular support finger.
- (Currently Amended) The deflectable catheter assembly of claim 2, wherein the second 9. tubular support inner surface is dimensioned and configured to snugly envelop and slidably eouple engage with a first tubular support outer surface.
- 10. (Currently Amended) The deflectable catheter assembly of claim 1, wherein the first tubular support outer surface is dimensioned and configured to slidably eouple engage with a surface defining the actuator lumen.
- 11. (Currently Amended) A deflectable catheter assembly comprising:
 - a catheter body extending from a bi-directional deflectable distal end to a proximal end and having an intermediate portion therebetween, wherein the catheter body is bidirectionally deflectable and includes an actuator lumen;
 - a housing attached to the proximal end of the catheter body;
 - a flexible element extending from the housing through the actuator lumen[[,]] to the bidirectional deflectable distal end, wherein the bi-directional deflectable distal end is controllable by at least one of pushing or pulling of the flexible element;

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a first tubular support coupled to the flexible element and coupled to an actuator mechanism disposed within the housing; and a second tubular support slidably eounled engaged with the first tubular support.

- (Currently Amended) The deflectable catheter assembly of claim 11, wherein the first tubular support and the second tubular support have a substantially similar outer perimeter perimeters.
- 13. (Currently Amended) The deflectable catheter assembly of claim 12, <u>wherein</u> a surface defining the actuator lumen is dimensioned and configured to snugly eouple engage with the first tubular support and <u>the</u> second tubular support.
- 14. (Currently Amended) The deflectable catheter assembly of claim 13, wherein the first tubular support is slidably eoupled engaged with the surface defining the actuator lumen.
- (Currently Amended) The deflectable catheter assembly of claim 13, wherein the second tubular support is coupled with the surface defining the actuator lumen.
- 16. (Currently Amended) The deflectable catheter assembly of claim 11, wherein an intermediate surface of the first tubular support and an intermediate surface of the second tubular support are dimensioned and configured to slidably eouple engage the first tubular support with the second tubular support.
- 17. (Currently Amended) The deflectable catheter assembly of claim 16, wherein the first tubular support intermediate surface, a first tubular support outer surface, and a first tubular support inner surface define at least one first tubular support finger.
- 18. (Currently Amended) The deflectable catheter assembly of claim 16, wherein the second tubular support intermediate surface, a second tubular support outer surface, and a second tubular support inner surface define at least one second tubular support finger.

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- 19. (Currently Amended) A deflectable catheter assembly comprising:
 - a catheter body extending from a deflectable distal end to a proximal end and having an intermediate portion therebetween, wherein the catheter body includes an actuator lumen:
 - a housing attached to the proximal end of the catheter body;
 - a flexible element extending from the housing through the actuator lumen, to the deflectable distal end, wherein the deflectable distal end is controllable by the flexible element; and
 - means for constraining lateral movement of the flexible element within the actuator lumen, wherein the means for constraining is correspondingly movable with movement of the flexible element and is separate from the flexible element.
- 20. (Currently Amended) The deflectable catheter assembly of claim 19, wherein the means for constraining lateral movement of the flexible element includes:
 - a first tubular support coupled to the flexible element and coupled to an actuator mechanism disposed within the housing; and
 - a second tubular support coupled to a surface defining the actuator lumen and slidably eoupled to engaged with the first tubular support.
- (Currently Amended) The deflectable catheter assembly of claim 20, wherein the first
 tubular support outer surface has an outer perimeter dimensioned and configured to
 snugly eeuple with and slidingly reside within the surface defining the actuator lumen.
- 22. (Currently Amended) The deflectable catheter assembly of claim 20, <u>wherein</u> the first tubular support is slidably eeupled <u>engaged</u> with the surface defining the actuator lumen, and the second tubular support is slidably eeupled <u>engaged</u> with the first tubular support and slidably eeupled <u>engaged</u> with the flexible element.

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(Currently Amended) A method comprising:

26.

23. (Currently Amended) A method comprising:

manipulating a deflectable catheter assembly into a first orientation, the catheter assembly including a catheter body and a housing coupled to a catheter body proximal end, an actuator lumen extending therein, a flexible element extending from an actuator member coupled with the housing through the actuator lumen to a deflectable distal end, a first tubular support coupled to the flexible element and coupled to the actuator member, and a second tubular support eoupled to glidably encaged with the flexible element;

constraining lateral movement of the flexible element including bracing the flexible element with the first tubular support and the second tubular support; and further manipulating the actuator member to thereby actuate the flexible element and deflect the deflectable distal end into a disparate orientation.

- 24. (Original) The method of claim 23, further comprising: telescopically advancing the first tubular support with the actuator member with respect to the second tubular support.
- 25. (Currently Amended) The method of claim 23, wherein further manipulating the actuator member to deflect the deflectable distal end into the disparate orientation includes constraining lateral movement of the flexible element within the actuator lumen with the first tubular support [[and]] telescopically engaged with the second tubular support.
- manipulating a deflectable catheter assembly into a first orientation, the catheter assembly including a catheter body and a housing coupled to a catheter body proximal end, an actuator lumen extending therein, a flexible element extending from an actuator member coupled with the housing through the actuator lumen to a deflectable distal end, a first tubular support coupled to the flexible element and

coupled to the actuator member, and a second tubular support slidably coupled to

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engaged with the flexible element and slidably eeupled engaged with the first tubular support:

longitudinally advancing the flexible element and first tubular support along an actuator lumen longitudinal axis[[,]] while the second tubular support is stationary with respect to the housing, and the first tubular support and second tubular support remain aligned with the actuator lumen longitudinal axis; and

further manipulating the actuator member to thereby advance the flexible element and deflect the deflectable distal end into a disparate orientation.

- (Original) The method of claim 26, further comprising: telescopically advancing the first tubular support with the actuator member with respect to the second tubular support.
- (Currently Amended) The method of claim 26, further comprising: constraining lateral movement of the flexible element including bracing the flexible element with the first tubular support and the second tubular support.
- 29. (Currently Amended) The method of claim 26, further manipulating the actuator member to deflect the deflectable distal end into the disparate orientation includes constraining lateral movement of the flexible element within the actuator lumen with the first tubular support and the second tubular support.
- 30. (Currently Amended) The method of claim 26, further manipulating the actuator member to deflect the deflectable distal end into the disparate orientation includes longitudinally advancing the flexible element and the first tubular support along the actuator lumen longitudinal axis[[,]] while the second tubular support is stationary with respect to the housing, and the first tubular support and the second tubular support remain aligned with the actuator lumen longitudinal axis.

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- 31. (New) The deflectable catheter assembly of claim 1, wherein the catheter body includes an exit lumen in a catheter body sidewall, the exit lumen being in communication with the actuator lumen, and wherein the exit lumen is between the proximal end and the deflectable distal end, and the flexible element extends out of the catheter body through the exit lumen.
- 32. (New) The deflectable catheter assembly of claim 11, wherein the catheter body includes an exit lumen in a catheter body sidewall, the exit lumen is between the proximal end and the bi-directional deflectable distal end, and wherein the second tubular support is coupled with the catheter body at the exit lumen with the flexible element extending out of the catheter body through the exit lumen and the second tubular support.
- 33. (New) The method of claim 23, wherein constraining lateral movement of the flexible element includes bracing the flexible element with the second tubular support at an exit lumen in a catheter body sidewall, the exit lumen is between the proximal end and the deflectable distal end with the flexible element extending out of the catheter body through the exit lumen.
- 34. (New) A deflectable catheter assembly, comprising:
 - a catheter body extending from a deflectable distal end to a proximal end and having an intermediate portion therebetween, wherein the catheter body includes an actuator lumen:
 - a housing coupled to the proximal end of the catheter body;
 - a flexible element extending from the housing through the actuator lumen to the deflectable distal end, wherein the deflectable distal end is controllable by pushing and pulling of the flexible element;
 - a first support comprising at least two spaced apart first support fingers disposed around
 the flexible element therein and coupled to an actuator mechanism disposed
 within the housing, the at least two spaced apart first support fingers being
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a second support coupled to a distal portion of the catheter body and comprising at least two spaced apart second support fingers disposed around the flexible element, wherein the at least two spaced apart first support fingers are telescopically engaged with the at least two spaced apart second support fingers in an alternating manner of a first support finger then a second support finger around the flexible element to substantially constrain lateral movement of the flexible element.

- 35. (New) The deflectable catheter assembly of claim 34, wherein the first support comprises four spaced apart first support fingers and the second support comprises four spaced apart second support fingers telescopically engaged with the first support fingers.
- 36. (New) The deflectable catheter assembly of claim 35, wherein the first and second support fingers each have a shape taken along a cross-section perpendicular to a longitudinal axis of the catheter body that tapers from a narrow portion immediately adjacent to the flexible element to a wider portion immediately adjacent to the actuator lumen.
- 37. (New) The deflectable catheter assembly of claim 36, wherein the first and second support fingers each have a concave surface at their narrow portion immediately adjacent to the flexible element, and the first and second support fingers each have a convex surface at their wider portion immediately adjacent to the actuator lumen.